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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,166	06/27/2001	Raphael Schlanger	01-396	4513

7590 12/27/2002

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EXAMINER

BELLINGER, JASON R

ART UNIT

PAPER NUMBER

3617

DATE MAILED: 12/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/893,166

Applicant(s)

SCHLANGER, RAPHAEL

Examiner

Jason R Bellinger

Art Unit

3617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-113 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-13, 15, 19, 21-24, 27, 29, 30, 32, 36, 45-48, 50-53, 61, 67, 70-72 and 76-81 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2-3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Continuation of Disposition of Claims: Claims withdrawn from consideration are 10,14,16-18,20,25,26,28,31,33-35,37-44,49,54-60,62-66,68,69,73-75 and 82-113.

Election/Restrictions

1. Applicant's election without traverse of species III, drawn to Figures 8a and 8b in Paper No. 5 is acknowledged.

2. Claims 10, 14, 16-18, 20, 25-26, 28, 31, 33-34, 37-44, 49, 54-60, 62-66, 68-69, 73, 75, 82-85, 87, 90-91, and 93-113 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species and subspecies, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 5.

3. Claims 35, 70-71, 74, 86, 88-89, and 92 are withdrawn from further consideration by the Examiner pursuant to 37 CFR 1.142(b) as being drawn to nonelected species and subspecies, there being no allowable generic or linking claim.

Claim 35 seems to be drawn to the nonelected invention of species IV, drawn to Figure 8c.

Claims 70-71, and 74 seem to be drawn to the nonelected invention of species V, drawn to Figures 9a-c.

Claims 86, 88-89, and 92 seem to be drawn to the nonelected invention of species X, drawn to Figures 15a-b and 16.

Specification

4. The disclosure is objected to because of the following informalities: On the last two lines of page 14, the reference to Fig. "9a" should be replaced with --9b-- for clarity.

Appropriate correction is required.

Claim Objections

5. Claims 2, 50 and 67 are objected to because of the following informalities: In line 2 of claim 50, the terms "of" and "said" should be removed from the phrase "a single of *said* cavity" for grammatically clarity.

Claims 2 and 67 include method limitations in an apparatus claims. For example, claim 2 sets forth "at least one of said first and second portion of said spoke **is assembled** within said cavity" and "at least one of said spoke and said cavity **is deformed** by means of said assembly"; while claim 67 sets forth "said deformed engagement constitutes cold flow" and "at least one of said spoke and said cavity undergoes said deformed engagement...softening due to application of heat." Method limitations receive little to no patentable weight in apparatus claims. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

7. Claims 1-9, 11-13, 15, 19, 21-24, 27, 29-30, 32, 36, 45-48, 50-53, 61, 67, 70-72, 76-81 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 3 is indefinite due to the fact that it is unclear what is being claimed by the phrase "insertion region of overlap".

Claims 27 and 29 are indefinite due to the fact that it is unclear what is being exactly what is being claimed by stating that the cavities may be axially offset from each other.

Claim 36 is indefinite due to the fact that it is unclear what is being claimed in the last 2 lines of the claim.

Claim 67 is indefinite due to the fact that it is unclear what the phrase "cold flow" is describing.

Claim 79 is indefinite due to the fact that it is unclear how the cavity can be made from a polymeric material, since by definition a cavity is a space formed by a lack of material.

8. Claim 1 recites the limitation "the joinder" in line 14. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 21 recites the limitation "its opposite connection point" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-6, 8-9, 11-12, 15, 19, 21-23, 27, 29, 32, 36, 45-46, 52, 67, 72, 76-77 are rejected under 35 U.S.C. 102(b) as being anticipated by Blean. Blean shows a tension spoke wheel having a peripheral rim **a**, a central hub **c** that will accept a central axle therethrough and further has an outer flange **c**¹. A plurality of spokes **B** extend between the rim and the hub. The spokes have first and second portions, the first portion connects to the rim and the second portion connects to the hub. A plurality of cavities are formed in the outer flange **c**¹ and are engaged with the spokes through a deformed engagement, in this case, riveting. This engagement is a firm connection that results in an overlapping region of contact between the cavity and the spoke. Both elements are preformed prior to assembly.

The cavities include a pair of ends with straight longitudinal sidewalls extending therebetween. At least one end of the cavities is open and the longitudinal sides are enclosed around the cross section of the spoke within the engagement region. In other words, the full cross-sectional perimeter of the spoke is in contact with the cavities in the engagement region. The spoke includes a longitudinal axis in the engagement region that is co-linear with a longitudinal axis of the cavity, both of which extend generally in an axial direction. The spoke is bent in a region external to the region where it engages

the cavity, so that it may extend to the rim. A spoke guiding portion of the outer flange c^1 is located outside the cavity, and serves to support the spoke at the bent region.

With respect to the axis of the hub, the outer flange includes a plurality of axially offset cavities. Each spoke has a circular cross-section. Each cavity is located in close proximity to another cavity, thereby having a reduced material thickness than in areas lacking a cavity. Each cavity includes a pair of ends with sidewalls extending therebetween, and the deformed engagement region occurs in at least a portion of the sidewalls of the cavity. The cross-sectional dimension of the cavity is smaller than the cross-sectional dimension of the spoke such that an interference fit results when the cavity and spoke are engaged. Each spoke is directly engaged within a single cavity.

Each spoke has a configured surface in the engagement region, and the cavity at least partially conforms to the configured surface when joined. When the spoke is riveted to the outer hub flange, it is materially deformed and thus experiences cold flow. Heat is a bi-product of mechanical deformation, however it does not appreciably soften either the spoke nor the cavity. A reinforcement element c^2 is connected to the outer flange, and serves to reinforce the flange against stresses caused by spoke tensile forces. This reinforcement element c^2 is a continuous annular element with a central opening to allow access for an axle, and further provides radial and hoop stress reinforcement to the outer flange.

12. Claims 1-6, 8-9, 19, 21-24, 27, 29-30, 32, 36, 47-48, 50-52, 61, 72, 76-78 are rejected under 35 U.S.C. 102(b) as being anticipated by Savene. Savene shows a

tension spoke wheel having a peripheral rim, a central hub that will accept a central axle therethrough and further has an outer flange. A plurality of spokes extend between the rim and the hub. The spokes have first and second portions, the first portion connects to the rim and the second portion connects to the hub. A plurality of cavities are formed in the outer flange and are engaged with the spokes through a deformed engagement. This engagement is a firm connection that results in an overlapping region of contact between the cavity and the spoke. Both elements are preformed prior to assembly.

The spoke includes a longitudinal axis in the engagement region that is co-linear with a longitudinal axis of the cavity, both of which extend generally in an axial direction. The spoke is bent in a region external to the region where it engages the cavity, so that it may extend to the rim. A spoke guiding portion of the outer flange is located outside the cavity, and serves to support the spoke at the bent region. An annular support element, and includes the guiding portion. The spoke terminates at an end that is located within the cavity.

With respect to the axis of the hub, the outer flange includes a plurality of axially offset cavities. Each spoke has a circular cross-section. Each cavity is located in close proximity to another cavity, thereby having a reduced material thickness than in areas lacking a cavity. Each spoke is directly engaged within a single cavity.

Each spoke has a configured surface in the engagement region, and the cavity at least partially conforms to the configured surface when joined. The spoke has a cross-sectional thickness in the engagement region, and the longitudinal depth on the engagement between the spoke and the cavity is greater than the cross-sectional

thickness of the spoke. The depth of the engagement between the cavity and the spoke is at least twice the cross-sectional thickness of the spoke. The cavity has an end portion that is at least partially closed, and the end of the spoke contacts the end portion of the cavity. The spoke may be removed from and reassembled with the hub flange without damaging the flange.

A reinforcement element F is connected to the outer flange, and serves to reinforce the flange against stresses caused by spoke tensile forces. This reinforcement element is a continuous annular element with a central opening to allow access for an axle, and further provides radial and hoop stress reinforcement to the outer flange. The spoke is positioned to contact the reinforcement element.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blean in view of Lacombe et al. Blean contains all of the limitations as set forth in paragraph 11 above, but does not show one end of the spoke with a fixed connection and the opposite end of the spoke having means to adjust its length, and thus allowing adjustment of its tension. In Figure 1, Lacombe et al teaches the use of a spoke having

a tension adjustment device 5 located at one end of a spoke, while the opposite end is meant to have a fixed connection.

Therefore from this teaching, it would have been obvious to one of ordinary skill at the time of the invention to provide Blean with a spoke having a tension adjustment device at the rim connection end of the spoke in order to allow for adjustment of the tension of the spokes. This would allow all the spokes to be adjusted to provide a balanced wheel, which would have an increased life and superior ride over an unbalanced wheel.

15. Claims 53 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blean in view of Rasmussen. Blean contains all of the limitations as set forth in paragraph 11 above, but does not show the configured surface of the spokes to be helical threads that engage a threaded cavity. Rasmussen teaches the use of spokes having threaded ends that mate with threaded cavities.

Therefore from this teaching, it would have been obvious to one of ordinary skill at the time of the invention to provide Blean with a spoke having a threaded end that mates with a threaded cavity as a substitution of equivalent connection means, wherein the threaded connection provides a more secure and strong connection than riveting.

Blean as modified by Rasmussen shows a wheel wherein the spoke may be removed from and reassembled with the flange without damaging the flange.

16. Claim 79 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blean in view of Thompson, Jr. Blean contains all of the limitations as set forth in paragraph 11 above, but does not show the hub being formed from a polymeric material. Thompson, Jr. teaches the use of a bicycle hub made from a polymeric material. Therefore from this teaching, it would have been obvious to one of ordinary skill at the time of the invention to provide Blean with hub made from a polymeric material for the purpose of reducing the weight, material cost, and machining costs of the wheel.

17. Claim 80 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blean in view of Thompson, Jr. as applied to claim 79 above, and further in view of Fujisaki et al. Blean as modified by Thompson, Jr. does not show a wheel hub made from a fiber reinforced polymeric material. Fujisaki et al teaches the use of fiber reinforced polymeric material in fabricating components for vehicle wheels. Therefore from this teaching, it would have been obvious to one of ordinary skill at the time of the invention to provide Blean as modified by Thompson, Jr. with a hub made from fiber reinforced polymeric material for the purpose of creating a lightweight wheel with the same physical strength as an equivalent metal.

18. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Savene in view of Lacombe et al. Savene contains all of the limitations as set forth in paragraph 12 above, but does not show one end of the spoke with a fixed connection and the opposite end of the spoke having means to adjust its length, and thus allowing

adjustment of its tension. In Figure 1, Lacombe et al teaches the use of a spoke having a tension adjustment device 5 located at one end of a spoke, while the opposite end is meant to have a fixed connection.

Therefore from this teaching, it would have been obvious to one of ordinary skill at the time of the invention to provide Savene with a spoke having a tension adjustment device at the rim connection end of the spoke in order to allow for adjustment of the tension of the spokes. This would allow all the spokes to be adjusted to provide a balanced wheel, which would have an increased life and superior ride over an unbalanced wheel.

19. Claim 79 is rejected under 35 U.S.C. 103(a) as being unpatentable over Savene in view of Thompson, Jr. Savene contains all of the limitations as set forth in paragraph 12 above, but does not show the hub being formed from a polymeric material.

Thompson, Jr. teaches the use of a bicycle hub made from a polymeric material.

Therefore from this teaching, it would have been obvious to one of ordinary skill at the time of the invention to provide Savene with hub made from a polymeric material for the purpose of reducing the weight, material cost, and machining costs of the wheel.

20. Claim 80 is rejected under 35 U.S.C. 103(a) as being unpatentable over Savene in view of Thompson, Jr. as applied to claim 79 above, and further in view of Fujisaki et al. Savene as modified by Thompson, Jr. does not show a wheel hub made from a fiber reinforced polymeric material. Fujisaki et al teaches the use of fiber reinforced polymeric

material in fabricating components for vehicle wheels. Therefore from this teaching, it would have been obvious to one of ordinary skill at the time of the invention to provide Savene as modified by Thompson, Jr. with a hub made from fiber reinforced polymeric material for the purpose of creating a lightweight wheel with the same physical strength as an equivalent metal.

Allowable Subject Matter

21. Claims 13 and 81 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references are considered to show spoke to hub connections for bicycle wheels. For example, Yamane shows a wheel of the type described above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason R Bellinger whose telephone number is 703-308-6298. The examiner can normally be reached on Mon - Thurs (9:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Morano can be reached on 703-308-0230. The fax phone numbers

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for the organization where this application or proceeding is assigned are 703-305-7687
for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or
proceeding should be directed to the receptionist whose telephone number is 703-308-
1113.

Jason R Bellinger
Examiner
Art Unit 3617

jrb *JRB*
December 19, 2002


S. JOSEPH MORANO
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